Amendment to the Claims:

1. (Cancelled)

2. (Currently Amended) The method according to claim [[1]]13, further including:

converting a photon of radiation into a scintillation; and

converting the scintillation into the analog pulse.

3. (Currently Amended) The method according to claim [[1]]13, further including:

smoothing the analog pulse to reduce variation from a Gaussian distribution prior to the digital sampling.

4. (Currently Amended) The method according to claim [[1]]13, wherein the digital sampling is at uniformly spaced time intervals.

5. (Currently Amended) The method according to claim [[1]]13, wherein there are at least four samples in the set of digital samples.

6. (Currently Amended) The method according to claim [[1]]13, wherein the step of determining an integral includes summing the samples in the set.

7. (Currently Amended) The method according to claim [[1]]13, wherein selecting the subset includes selecting at least two samples in the set.

8. (Cancelled)

9. (Currently Amended) The method according to claim [[1]]13, wherein the step of determining a correction factor includes:

concatenating the subset of digital samples; and

using the concatenation to form a correction factor look up table.

10. (Original) The method according to claim 9, further including:

normalizing each of the samples in the subset to a maximum sample in the set of samples to form a normalized sample; and

multiplying each of the normalized samples by a factor which is the same for all samples in the subset.

11. (Currently Amended) The method according to claim [[1]]13, further including: determining a start time of the analog pulse from the subset of digital samples.

12. (Cancelled)

13. (Currently Amended) [[The]]A method ~~according to claim 12, wherein~~ of reducing errors resulting from a temporal shift between an analog pulse and digital sampling intervals, the method comprising:

generating a correction table which assigns a correction factor for a plurality of codes, each of the codes corresponding to a relationship between a subset of digital samples in a calibration signal which is similar in shape to the analog pulse, generating [[a]]the correction table ~~includes:~~including for a plurality of calibration sample sets in which calibration pulses are shifted in time relative to a sampling interval:

sampling the calibration pulses at a plurality of spaced intervals to generate a set of calibration digital samples;

determining an integration which is a function of the digital samples in the selecting [[a]] the subset of the digital samples;

determining a correction factor which relates the integration of the set of samples to an integration of a set of digital samples in which the first sample is taken at a fixed point of reference; and

assigning a code to the subset of digital samples which relates to a relationship amongst the samples in the subset and assigning the correction factor to the code;

digitally sampling the analog pulse with an analog to digital converter at a plurality of spaced sampling intervals to generate a set of digital samples;

determining an integral from the samples in the set;

from the correction table and the subset of the set of digital samples, determining the correction factor corresponding to the subset of digital samples;

applying the correction factor to the integral to generate a corrected integral value;

restructuring an image from a plurality of the analog pulses and the corrected integral values; and

display the reconstructed image on a display device.

14. (Currently Amended) The method according to claim 13, wherein the fixed point of reference is a start of the sampling interval.

15. (Original) The method according to claim 13, wherein assigning a code to the subset of predicted samples includes:

for each of the samples in the subset, converting the sample to an M-bit code; and

concatenating the M-bit code to an MxN bit code, where N is the number of samples in the subset.

16. (Original) The method according to claim 15, wherein converting the samples to an M-bit code includes:

normalizing each of the sample to a maximum sample in the set of predicted samples; and

multiplying the normalized sample by a factor which is the same for all samples in the subset of predicted samples.

17. (Currently Amended) A nuclear camera comprising:

at least one detector head which generates energy pulses in response to received radiation; and

a processor for integrating the pulses wherein the processor carries out the actions of:

digitally sampling an analog pulse at a plurality of temporally spaced sampling intervals to generate a set of digital samples, the sampling starting at temporal delay after start of the analog pulse;

determining an ~~integral from~~ energy of the pulse by integrating the samples in the set, the energy including an error attributable to the temporal delay;

determining a correction factor corresponding to at least a portion of the samples in the set; and

applying the correction factor to the ~~integral~~ integrated to generate a corrected ~~integral~~ energy value.

18. (Currently Amended) A system for reducing temporal shift errors between an analog pulse and a digital sampling interval comprising:

a means for digitally sampling the analog pulse at temporal sampling intervals to generate a set of digital samples;

a means for determining an ~~integral~~ energy of the analog pulse ~~from~~ by integrating the set of digital samples;

a means for selecting a subset of the digital values;

a means for determining a correction factor from the subset of digital samples-; and

a means for correcting the determined energy by applying the correction factor to the integral of the set of digital samples.

19. (Original) The system according to claim 18, wherein the means for sampling includes an analog to digital converter.

20. (Currently Amended) A system for reducing temporal shift errors between an analog pulse and a digital sampling interval comprising:

an analog to digital converter ~~for sampling~~ which samples the pulse at intervals of time to generate a set of digital ~~samples~~ values, the sampling starting after a delay of up to 1 of the intervals of time;

a correction table ~~which assigns a~~ of correction ~~factor to each of a plurality of codes, each of the codes corresponding to a relationship~~ factors based on a shape of the pulse and relationships amongst samples in ~~a subset~~ subsets of calibration samples, each of the subsets corresponding to one of a plurality of delays, ~~each of the subsets of calibration samples being selected from a different set of calibration samples, wherein each of the sets of calibration samples are shifted in time relative to a sampling interval~~; and

a processor ~~for calculating an integral of the~~ which calculates an area under the pulse from the digital values and ~~the~~ a one of the correction ~~factor~~factors corresponding to the subset of the digital values of the pulse.

21. (Previously Presented) The system of claim 20, further including:

a source of radiation; and

a detector which detects the radiation